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## CAPILLARY DIAMETER, PATHLENGTH AND DENSITY IN NORMOTENSIVE AND HYPERTENSIVE RATS

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Arteriolar rarefaction in hypertension is well documented but data on capillaries (CAP) are conflicting. To determine if differences are present we measured CAP diameter (D,μm), length per unit tissue volume (Ld,mm/cu mm) as an index of number density, individual segment length (Ls,μm) and arteriole-venule capillary flow pathlengths (Lp,μm) in the cremaster of 9 hypertensive (SHR) and 10 normotensive (WKY) rats 6-7 wks of age. In vivo measurements were made in randomly chosen zones after making the vasculature fluorescent via an IV dose of Fluorescein Isothiocyanate- Dextran 150 (30 μg/g). Groups (WKY vs SHR) differed in mean blood pressure (95.4 vs 145.4 mmHg., $P < 0.001$, t-test) and differed in D and Ld ($P < 0.001$, analysis of variance), but no significant differences in Lp or Ls between groups were found. Group means ± SEM for measurements follow as WKY vs SHR: D, 5.9 ± 0.2 vs 6.5 ± 0.2; Ld, 194 ± 6 vs 153 ± 7; Ls, 108 ± 4 vs 128 ± 6; Lp, 406 ± 12 vs 460 ± 16. D and Ld values are greater than in previous reports, in part due to the use of fluorescence whereby diameter underestimation and uncounted vessels are less likely. The lower Ld in SHR vs WKY, together with the absence of group differences in Ls or Lp, suggests that the lower Ld reflects CAP rarefaction in SHR.

The author affirms that the material herein will not have been previously published as a manuscript ~~or presented at any national meeting~~, that any animal studies conform with the "Position of the American Heart Association on Research Animal Use" (see enclosed statement) and that any human experimentation has been conducted according to a protocol approved by the institutional committee on ethics of human investigation or — if no such committee exists — that it conforms with the principles of the Declaration of Helsinki of the World Medical Association *(Clinical Research* 14:193, 1966).

**Author's Signature:** Harvey N. Mayrovitz

The undersigned certifies that all authors named in the abstract have agreed to its submission for presentation at either the Annual Fall Conference and Scientific Sessions of the Council for High Blood Pressure Research or the AHA Annual Scientific Sessions.

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